

# EE-SX1321

## Ultra-Compact Slot / SMD Type (Slot width: 2 mm)

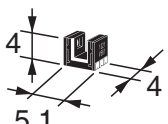
- PCB surface mounting type.
- High resolution with a 0.3-mm-wide aperture.
- Dual-channel output.



**⚠** Be sure to read *Safety Precautions* on page 3.

## Ordering Information

### Photomicrosensor

Appearance	Sensing method	Connecting method	Sensing distance	Aperture size (H × W) (mm)	Output type	Model
	Transmissive (slot type)	SMT	<b>2 mm</b> (slot width)	Emitter 1.4 × 1.4  Detector 1 × 0.3 2ch	Phototransistor (Dual-channel output)	<b>EE-SX1321</b>

## Ratings, Characteristics and Exterior Specifications

### Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rated value	Unit
<b>Emitter</b>			
Forward current	I <sub>F</sub>	25 *1	mA
Pulse forward current	I <sub>FP</sub>	100 *2	mA
Reverse voltage	V <sub>R</sub>	5	V
<b>Detector</b>			
Collector-Emitter voltage	V <sub>CEO</sub>	12	V
Emitter-Collector voltage	V <sub>ECO</sub>	5	V
Collector current	I <sub>C</sub>	20	mA
Collector dissipation	P <sub>C</sub>	75 *1	mW
Operating temperature	T <sub>opr</sub>	-30 to +85 *1	°C
Storage temperature	T <sub>stg</sub>	-40 to +90 *1	°C
Reflow soldering temperature	T <sub>sol</sub>	255 *3	°C

\*1. Refer to the temperature rating chart if the ambient temperature exceeds 25°C.

\*2. Duty ratio: 1%, Pulse width: 0.1 ms

\*3. Complete soldering within 10 seconds for reflow soldering.

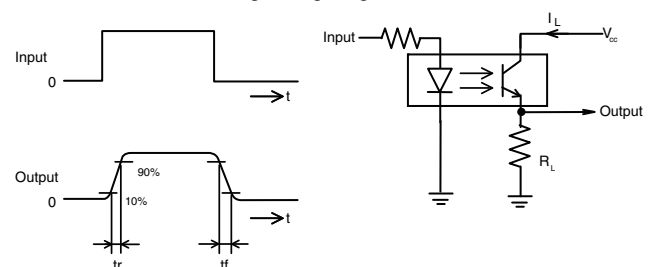
### Exterior Specifications

Connecting method	Weight (g)	Material
		Case
SMT	0.1	PPS

### Electrical and Optical Characteristics (Ta = 25°C)

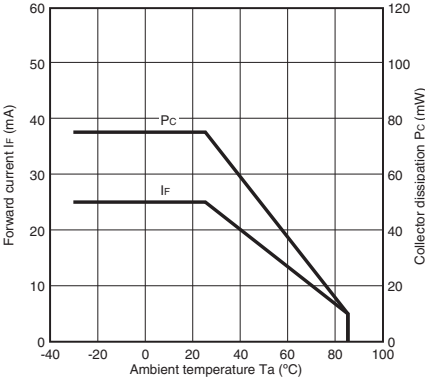
Item	Symbol	Value			Unit	Condition
		MIN.	TYP.	MAX.		
<b>Emitter</b>						
Forward voltage	V <sub>F</sub>	---	1.1	1.3	V	I <sub>F</sub> = 5 mA
Reverse current	I <sub>R</sub>	---	---	10	μA	V <sub>R</sub> = 5 V
Peak emission wavelength	λ <sub>P</sub>	---	940	---	nm	I <sub>F</sub> = 20 mA
<b>Detector</b>						
Light current	I <sub>L1</sub>	150	---	1500	μA	I <sub>F</sub> = 5 mA, V <sub>CE</sub> = 5 V
	I <sub>L2</sub>	150	---	1500	μA	
Dark current	I <sub>D</sub>	---	10	100	nA	V <sub>CE</sub> = 10 V, 0 lx
Collector-Emitter saturated voltage	V <sub>CE (sat)</sub>	---	0.1	0.4	V	I <sub>F</sub> = 20 mA, I <sub>L</sub> = 50 μA
Peak spectral sensitivity wavelength	λ <sub>P</sub>	---	900	---	nm	V <sub>CE</sub> = 5 V
Rising time	t <sub>r</sub>	---	19	---	μs	V <sub>CC</sub> = 5 V, R <sub>L</sub> = 100 Ω, I <sub>L</sub> = 500 μA
Falling time	t <sub>f</sub>	---	26	---	μs	V <sub>CC</sub> = 5 V, R <sub>L</sub> = 100 Ω, I <sub>L</sub> = 500 μA

**Note:** Refer to the following timing diagram for t<sub>r</sub> and t<sub>f</sub>.

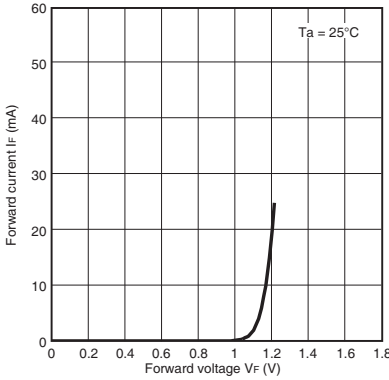


# Engineering Data (Reference value)

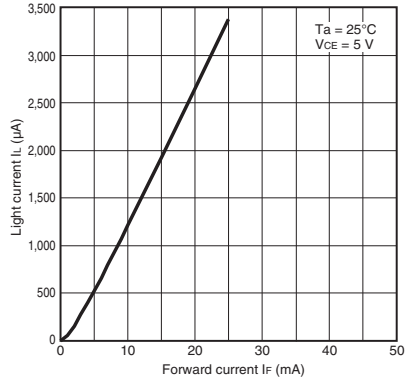
**Fig 1. Forward Current vs. Collector Dissipation Temperature Rating**



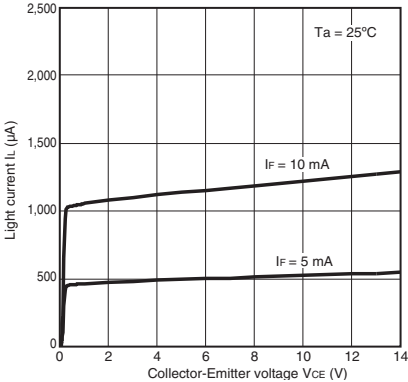
**Fig 2. Forward Current vs. Forward Voltage Characteristics (Typical)**



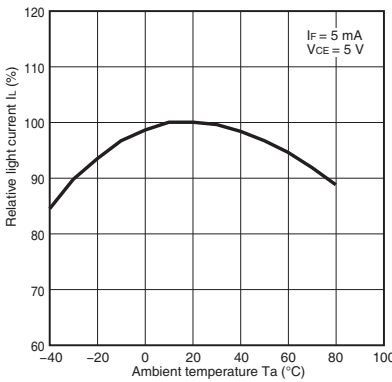
**Fig 3. Light Current vs. Forward Current Characteristics (Typical)**



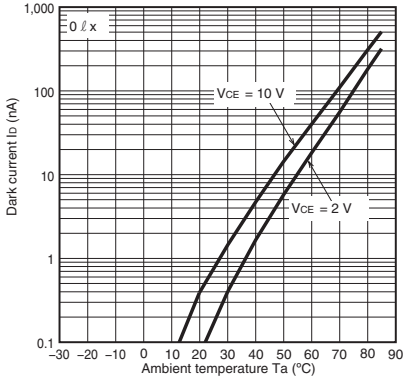
**Fig 4. Light Current vs. Collector-Emitter Voltage Characteristics (Typical)**



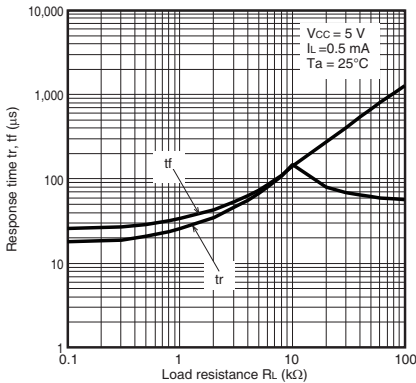
**Fig 5. Relative Light Current vs. Ambient Temperature Characteristics (Typical)**



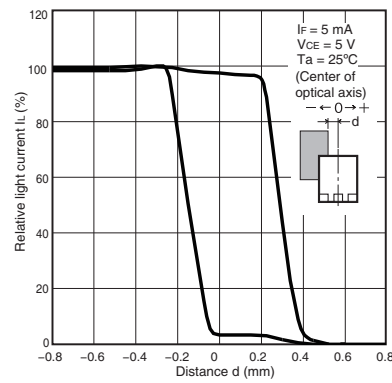
**Fig 6. Dark Current vs. Ambient Temperature Characteristics (Typical)**



**Fig 7. Response Time vs. Load Resistance Characteristics (Typical)**



**Fig 8. Sensing Position Characteristics (Typical)**



**Fig 9. Sensing Position Characteristics (Typical)**

